



EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

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HFC USED TO CONVERT LOWER TEMPERATURE WASTE HEAT INTO POWER

[HFC-245fa](#) is being used as the heat-transfer fluid to convert waste heat to power in an innovative way: HFC-245fa is evaporated using low temperature waste heat, and the resulting vapor will drive a patented expander that generates inexpensive usable electricity.

The project machine can generate more than 50 kWh, and was recognized as a top technology innovation in 2008.

The system is based on a so-called [Organic Rankine Cycle](#) (ORC). Different from the Carnot cycle, universally used in [refrigeration](#) or in heat pumps, which transfers heat from a low temperature to a higher one, the Rankine Cycle converts heat into power and electricity: a working fluid is pumped to a boiler where it is evaporated, expanded through a turbine which delivers electricity, and is finally re-condensed.

The Rankine Cycle is well known for converting high pressure and temperature steam into electricity in the steam turbines installed in power stations. However, based on the use of an organic, higher molecular mass fluid with a lower boiling point, the Organic Rankine Cycle advantage is the feasibility of recovering heat from lower temperature sources such as industrial waste heat, geothermal heat, solar ponds, etc.

HFC-245fa is ideal for use in ORCs because of its heat transfer properties, including a low boiling point of 15.3 C. This allows using low-temperature waste heat sources to convert them to electricity. The waste heat can come from a variety of sources, including common boilers and chillers in office buildings.

Source: Product manufacturer

RECAST DIRECTIVE ON EU ENERGY PERFORMANCE OF BUILDINGS CALLS FOR AN INCREASED USE OF RENEWABLE TECHNOLOGY, INCLUDING HEAT PUMPS

[EPEE has welcomed](#) the recasting of the Energy Performance of Buildings Directive (EPBD, which calls for an increased use of efficient renewable technologies, like heat pumps. In addition to heat pumps, [EPEE](#) members also manufacture efficient [air-conditioning](#) equipment which contributes to reduced energy consumption of buildings.

The decisions to recast the Directive will be a powerful contributor towards the European renewable energy use targets of 20% by 2020.



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The Energy Performance of Buildings Directive (EPBD) was adopted in 2002 to stress the importance of energy use in buildings, and to substantially increase investments in energy efficiency measures in buildings.

Buildings account for 30 to 40 % of EU Member States' energy consumption, and therefore present a very important potential for energy savings and related greenhouse-gas emission reductions.

However, due to the lack of national implementing measures, the Commission decided to propose a [recast of the directive](#) in November 2008. The EU Parliament adopted on April 23 the proposal with amendments, paving the way to its entry into force before the end of 2009.

[According to the Commission](#), the revised directive will cut down EU energy use by 5-6%, achieving comparable CO₂ savings by 2020.

HFC BASED HEAT PUMPS COMPLYING WITH THE NEW GERMAN REGULATION ON HEAT PROVIDED BY RENEWABLE ENERGY

A German Heat Pump manufacturer offers an HFC-based air-air heat pump able to provide continuously the minimum proportion of 50 per cent of the heating requirement required by the recent German Regulation on Heating with Renewable energy "Erneuerbare-Energien-Wärmegesetz ([EEWärmeG](#))", which entered into force in January 2009.

The regulation requires owners of new buildings to provide a certain amount of the heating requirements to originate from renewable sources. In the case of heat pumps this proportion is of 50 per cent.

The supplier guarantees that the direct heating system can be designed to supply half the building's total needs. It would even be possible, with solar panels, to cover the total heat requirement.

The heat pumps have a capacity up to 200 KW, sufficient to heat an office of 2,500 m².

Using a high performance compressor working with R-410A, it can reach a COP of 4.02.

The heat is delivered by the heat pump to increase the temperature of temperate warm air coming from a condensation gas burner, with an efficiency of 95 percent and more.

The flow of warm air at constant temperature can be varied between 25 and 100%.

There is also a possibility to operate the heat pump to produce cooled air.



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Source : [Heiße Luft schont Umwelt und Etat](#) (2.05.2009)

NEW HFC BASED LOW CHARGE EFFICIENT CHILLER CUTS POWER CONSUMPTION BY UP TO 50 PER CENT

A new type of HFC-based [efficient chiller](#) delivers unprecedented energy savings and carbon reduction for end users.

Claimed to be an extremely efficient HFC-based air-cooled chiller, it can achieve EERs⁽¹⁾ of 10 and above. The new machine can reduce end users' power bills by between 30 and 50 per cent - while at the same time dramatically [cutting carbon emissions](#). As a result of its innovative design, the machine requires 30 per cent less refrigerant than conventional chillers, reducing servicing costs and potential environmental damage from large-scale leakage.

The chiller uses a combination of high efficiency components and technologies, combined with a highly sophisticated adaptive control system that integrates and optimises performance.

Some key design features include micro-channel condensers ([reducing the refrigerant charge](#) while increasing the heat exchange effectiveness), flooded evaporators (ensuring optimum energy transfer), and a self-regulating system which optimises its performance in response to ambient conditions and load.

Source: Equipment Manufacturer

(1) EER : Energy Efficiency Ratio (calculated by dividing the cooling capacity of a chiller in kW by the power input of its compressor in kW, at given rating conditions)

NEW ON FLUOROCARBONS.ORG

[EPEE Position Paper](#) on the international HFC-Control Proposals (presented on May 25th at an EU Commission stakeholder information meeting).





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NEW ON WWW.FIGAROO.ORG/French

NEW FIGAROO [WEBSITE IN ITALIAN](#)

FRANCE: AFCE publishes a first [list of certifying bodies](#) to be regularly updated.

FRANCE: Specific [French FAQ](#) regarding the « Décret Fluides »

NEW LINKS ADDED

Questions related to the European Ecodesign Directive
[Ecodesign information and communication portal](#) (**[Register now free to get access](#)**)